STAN. AND FORM NO. 64

Office Memorandum CONFIDENTIAL UNITED STATES GOVERNMENT

SPM 8-555

TO : Chief, Engineering Division, OC

DATE: 25 February 1958

FROM : Chief, Supplemental Programs Division, OC

SUBJECT: Inflatable Parabolic Antennas

25X1

REFERENCE: ENG 8-102

1. Between the two sources of inflatable parabolic antennas; [redacted], we find both systems possessing the properties required for their intended use. Since a representative of the EAB was present during the [redacted] contact, we have firmly established our needs for a set of five antennas. We, therefore, have budgetted funds under Allotment No. 8-7912-50-600 for the purchase of these antennas.

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2. The following constitutes the firm design requirements for these five complete antennas:

A. Breakdown and packaging for transportation in containers not to exceed 20" X 20" X 12" outside dimensions.

B. Receiving only from 10,000 mcs down to 700 or 800 mcs. (The lower limit will be determined as that frequency where the gain of the parabolic equals a conventional array.) Does this mean a dipole ?

C. Minimum number of feed horns still maintaining a VSWR of better than 3 to 1.

D. Fifty ohms unbalanced feed using high quality coaxial cable for minimum loss.

E. The maximum operating space to accomodate the reflector, feeds, and blower will be seven feet high, nine feet wide, by nine feet deep.

F. The blower for inflating the antenna must be electrically free of interference and audibly quiet outside the room of operation.

G. Ninety degree manual rotation of the feeds must be provided for polarization changes.

H. Side lobe response should be at least 10 db. below the main lobe.

I. The/blower

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I. The blower motor should be capable of operating from 110/220 volts 50/60 cycle sources as well as 12 volts d.c. (If a complete motor change for direct current operation is required, we request that we be advised for determining the quantity desired.)

J. Both companies to our knowledge indicated the capability of attaching a simple and inexpensive azimuth indicator to the reflectors. This should be established as a firm requirement.

K. The following table of beam patterns and gain are established as a guide but the maximum gain is requested except at 10,000 mcs where the beam width must not be smaller than two degrees.

FREQ. MCS	GAIN	BEAM WIDTH
800	22 db	13°
1860	28 db	6.5°
4320	34 db	3.1°
10000	36 db	2.5°

L. In the case of the [redacted] proposal, two radomes for outdoor installations are requested with their necessary blowers, guys, and base plates. (These blowers should also operate from 110/220 volts at 50/60 cycles and 12 volts direct current.) The [redacted] antennas should be requested with two tower mounts for outdoor use since we understand their antennas are weather-proof. 25X1 25X1

M. The main criteria for these antennas is maximum gain, highly flexible for installation, and packagable in 20X20X12 inch containers.

3. We request your recommendations as to which company should be contracted since we are anxious to commence work on this equipment.

4. As an added comment on establishing a contract, we request that all R&D work required should be priced against the first antenna with four additional units as a basic construction order.

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[redacted]
Acting

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Distribution:
Orig & 1 - Addressee

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ROUTING AND RECORD SHEET

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SUBJECT: (Optional)

FROM: OC-SP/EA

NO. SPM 8-555

DATE

TO: (Officer designation, room number, and building)	DATE RECEIVED	DATE FORWARDED	OFFICER'S INITIALS	COMMENTS (Number each comment to show from whom to whom. Draw a line across column after each comment.)
1. SP/EA	2		BJ	For approval, pls.
2. SPD	2/27	3/3 Mc Fox	Lewis of	For signature, pls.
3. OC-E			JK	
4. RDB			JCS	
5. EP	3-5		MA	ACTION — Re ¶ 4. I believe this procedure will seriously handicap procurement, especially with respect to time. Please check this item carefully before making final recommendation
6. LHG (ACTION)				
7.				
8.				
10.				
11.				
12.				
13.				
14.				
15.				

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